

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Priority Application Serial No. 09/352,817
Priority Filing Date July 13, 1999
Inventor..... Eugene P. Marsh
Assignee..... Micron Technology, Inc.
Priority Group Art Unit 1762
Priority Examiner B. Chen
Attorney's Docket No. MI22-1786
Title: Methods of Cleaning Vaporization Surfaces

PRELIMINARY AMENDMENT

To: Box PATENT APPLICATION
Assistant for Patents and Trademarks
Washington, D.C. 20231

From: James E. Lake (Tel. 509-624-4276; Fax 509-838-3424)
Wells, St. John, Roberts, Gregory & Matkin P.S.
601 W. First Avenue, Suite 1300
Spokane, WA 99204-0317

AMENDMENTS

In the title

Please replace the title "Vapor Forming Devices, and Methods of Cleaning
Vaporization Surfaces" with -- Methods of Cleaning Vaporization Surfaces --

In the Specification

At p. 1, before the "Technical Field" section, insert

--RELATED PATENT DATA

This patent resulted from a continuation application of U.S. Patent Application
Serial No. 09/352,817, filed on July 13, 1999.--

In The Claims

Please cancel claims 1-31 without prejudice, and add new claims 32-48.

32. A method comprising cleaning an accumulated deposition from a vaporization surface of a vapor forming device by using the vaporization surface as an electrode to form a plasma within the device.

33. The method of claim 32 wherein the vaporization surface is held at ground potential while RF energy is supplied to a second electrode to form the plasma.

34. The method of claim 32 wherein RF energy is supplied to the vaporization surface while a second electrode is held at ground potential to form the plasma.

35. The method of claim 32 wherein the vaporization surface is provided with a negative bias power while RF energy is supplied to a second electrode to form the plasma.

36. The method of claim 32 wherein the plasma comprises one or more of gaseous Cl_2 , CCl_4 and CF_4 .

37. The method of claim 32 wherein the device is comprised by a chemical vapor deposition apparatus.

38. A method of cleaning a vaporization surface having deposits accumulated from use in a vapor forming device, the method comprising using the vaporization surface as an electrode to form a plasma within the device, the plasma cleaning at least some of the deposits from the vaporization surface.

39. The method of claim 38 wherein the vaporization surface is held at ground potential while RF energy is supplied to a second electrode to form the plasma.

40. The method of claim 38 wherein RF energy is supplied to the vaporization surface while a second electrode is held at ground potential to form the plasma.

41. The method of claim 38 wherein the vaporization surface is provided with a negative bias power while RF energy is supplied to a second electrode to form the plasma.

42. A method comprising:
flowing at least one liquid across a vaporization surface to form a vapor;
accumulating a deposition on the vaporization surface as a vapor is formed therefrom; and
using the vaporization surface as an electrode to form a plasma cleaning at least some of the deposition from the vaporization surface.

43. The method of claim 42 wherein the vaporization surface is comprised by a vapor forming device of a chemical vapor deposition apparatus.

44. The method of claim 42 wherein the vaporization surface is comprised by a chemical vapor deposition apparatus, wherein the at least one liquid comprises $\text{Ba}(\text{THD})_2$, $\text{Sr}(\text{THD})_2$ and $\text{Ti}(\text{THD})_2(\text{O-iPr})_2$, and further comprising chemical vapor depositing BST on a substrate within the apparatus.

45. The method of claim 42 wherein the plasma comprises one or more of gaseous Cl_2 , CCl_4 , CF_4 , CHF_3 , O_2 , SF_6 , NF_3 , CCl_3F , CClF_3 , C_2F_6 , H_2 , C_3F_8 , and O_3 .

46. The method of claim 42 wherein the vaporization surface is held at ground potential while RF energy is supplied to a second electrode to form the plasma.

47. The method of claim 42 wherein RF energy is supplied to the vaporization surface while a second electrode is held at ground potential to form the plasma.

48. The method of claim 42 wherein the vaporization surface is provided with a negative bias power while RF energy is supplied to a second electrode to form the plasma.

REMARKS

Claims 1-31 are canceled. New claims 32-48 are pending in the application.
Examination of claims 32-48 is requested.

Respectfully submitted,

Dated: 21 Aug 2001

By: 
James E. Lake
Reg. No. 44,854